Rotations Help Resist Corky Ringspot

This brown, bull's-eye blemish on potato tubers is caused by the tobacco rattle virus, which is injected into potato plants as tiny, wormlike nematodes feed. Fumigation is the most frequently used defense against the troublesome stubby root nematode that carries the virus.

But a more sustainable, pest-specific approach has been devised that involves rotating potatoes with alfalfa or spearmint. For some reason, the corky ringspot-carrying virus can't survive on these two crops, so the nematodes can't acquire it from feeding on their roots. And since the nematodes naturally shed the virus from their bodies by molting, they eventually rid themselves of it altogether. Greenhouse tests have borne out this theory. But key to adoption of this rotation method will be making sure that no susceptible weeds grow amidst the alfalfa or spearmint on which nematodes can acquire the virus. *Rick A. Boydston, USDA-ARS Vegetable and Forage Crop Production Research Unit, Prosser, Washington; phone (509) 786-9267, e-mail boydston@pars.ars.usda.gov.*

New Test of Poultry Health

A previously little-understood iron-binding protein, ovotransferrin (OTF), is abundant in poultry blood and eggs. It becomes even more concentrated in the blood of chickens that are fighting infections, turning out to be a major acute-phase protein (APP). Its antimicrobial activity is probably related to its ability to block the availability of iron that's necessary for bacterial growth.

Believing that OTF levels are an indicator of health problems in poultry, researchers have developed an enzyme-linked immunoassay test to detect and measure OTF levels in chicken blood. OTF also enhances the function of cells such as macrophages and heterophils that are critical to the immunodefensive mechanisms in poultry. A better understanding of the roles of disease-modifying APPs in serum could lead to new approaches to improving natural disease resistance in poultry. Companies have shown interest in working with the researchers to develop the new test. Other collaborations may lead to developing a diagnostic marker based on OTF to determine the health of birds during inspections. *Narayan Rath, USDA-ARS Poultry Production and Products Safety Research Unit, Fayetteville, Arkansas; phone (501) 575-6189, e-mail nrath@uark.edu.*

STEPHEN AUSMUS (K10004-11)

High levels of a protein called ovotransferrin may indicate infection in poultry.

Testosterone Test Spots Dud Studs

Since 15 to 25 percent of male sheep in U.S. flocks don't mate, ranchers want to find a way to identify good breeding rams. Just one nonbreeder can cost up to $500 to buy and maintain—not to mention the lost potential of lambs not born. Some producers use artificial insemination to sidestep the problem of variable male libidos, but that means more labor costs. Others rely on multiple-sire breeding groups to make sure all ewes get bred. But this practice incurs extra sire costs and makes it impossible to know resulting lambs' paternity.

A new test, based on the premise that libido and testosterone secretion are closely linked, may take the guesswork out of ram purchase. It uses an injection of naloxone to block certain hormones and stimulate testosterone release. The testosterone response of male mammals given naloxone predicts whether or not they will be sexually active.

Ranchers could use the test to save both time and money and increase the reproductive potential of their flocks. This technology has been patented and is now available for licensing. *John N. Stellflug, U.S. Sheep Experiment Station, Dubois, Idaho; phone (208) 374-5306, e-mail tellflug@dcdi.net.*

Waxy Wheat Cuts Bread Fat

A unique new kind of durum called waxy wheat has been found to function as its own shortening in bread recipes. Vegetable oil or another type of fat is often added to bread dough to improve crumb softness, loaf volume, and texture. Shortening also keeps bread from becoming stale too quickly.

This new kind of waxy durum wheat can replace vegetable shortening without losing desired properties of the bread. Not only would this save commercial bakers money, it would save consumers calories—about 26 grams of fat, or 234 calories per loaf.

Wheat is mostly starch, which is a polymer—or chain—of glucose molecules containing amylose (the straight-chain form) and amylopectin (the branched-chain form). Most wheat cultivars are about 24 percent amylose and 76 percent amylopectin. However, this new wheat contains an unusual type of starch that is 100 percent amylopectin. Researchers have been developing, evaluating, and testing applications for the new waxy durum wheat flour for about 5 years. *Douglas C. Doehlert, USDA-ARS Red River Valley Agricultural Research Center, Fargo, North Dakota; phone (701) 239-1413, e-mail doehlerd @fargo.ars.usda.gov.*